VACUUM PHOTOTUBE
END TYPE WITH S-9 RESPONSE

DATA

General:
Spectral Response ............................................. S-9
Wavelength of Maximum Response. ........ 4800 ± 500 angstroms
Cathode:
  Shape ....................................................... Circular
  Window Area ................................................. 0.030 sq.in.
  Minimum Diameter ........................................... 0.19
Direct Interelectrode Capacitance ........... 1.9 μf
Overall Length ............................................ 1-11/32" ± 1/16"
Maximum Diameter ........................................... 1/4"
Bulb ......................................................... T-2
Mounting Position ........................................... Any

TERMINAL CONNECTIONS

Small End: Anode  Large End: Cathode

Maximum Ratings, Absolute Values:
ANODE-SUPPLY VOLTAGE (DC or Peak AC) 180 max. ...... volts
PEAK CATHODE CURRENT .................. 1.5 max. ...... μamp
PEAK CATHODE-CURRENT DENSITY ......... 100 max. μamp/sq.in.
AVERAGE CATHODE CURRENT ............. 0.4 max. ...... μamp
AMBIENT TEMPERATURE ..................... 75 max. ...... °C

Characteristics:

<table>
<thead>
<tr>
<th>Min.</th>
<th>Av.</th>
<th>Max.</th>
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<tr>
<td>Dark Current at 180 Volts ..........</td>
<td>0.005</td>
<td>μamp</td>
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Sensitivity:

At 4800 Angstroms .......... | 0.020 | μamp/μwatt
Luminous .............. | 20  | 30  | 50  | μamp/lumen

O Averaged over any interval of 30 seconds maximum.
△ Measured under conditions specified on sheet "PHOTOTUBE SENSITIVITY and SENSITIVITY MEASUREMENTS", at the front of this Section, except that the anode supply is 180 volts and the light flux is 0.015 lumen.

SPECTRAL-SENSITIVITY CHARACTERISTIC of Phototube having S-9 Response is shown at the front of this Section

JULY 3, 1950
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

Indicates a change.
NOTE: WHEN TUBE IS ROTATED ABOUT THE LONGITUDINAL AXIS OF ITS CATHODE TERMINAL, NO PART OF THE ANODE TERMINAL WILL FALL OUTSIDE OF A 0.241"-DIAMETER CIRCLE CONCENTRIC WITH THE LONGITUDINAL AXIS OF THE CATHODE TERMINAL.
Vacuum Phototube

HEAD-ON TYPE WITH S-9 RESPONSE

DATA

General:
Spectral Response: S-9
Wavelength of Maximum Response: 4800 ± 500 angstroms
Cathode, Semitransparent:
  Shape: Circular
  Window:
    Area: 0.03 sq. in.
    Minimum diameter: 0.19"
Direct Inter-electrode Capacitance: 1.9 μf
Maximum Overall Length: 1-11/32" ± 1/16"
Maximum Diameter: 1/4"
Operating Position: Any
Weight (Approx.): 0.1 oz
Bulb: T2
Terminal Diagram (See Dimensional Outline): 2AT

Small End: Anode
Large End: Cathode

Maximum Ratings, Absolute-Maximum Values:
ANODE-SUPPLY VOLTAGE (DC or PEAK AC): 180 max. volts
AVERAGE CATHODE-CURRENT DENSITY*: 25 max. μa/sq. in.
AVERAGE CATHODE CURRENT*: 0.4 max. μa
AMBIENT TEMPERATURE: 75 max. °C

Characteristics:
With an anode-supply voltage of 180 volts unless otherwise specified

Min.  Median  Max.

Sensitivity:
  Radiant, at 4800 angstroms:  0.025  0.05  0.05 μa/μw
  Luminous#:  20  37  70 μa/lumen
Anode Dark Current at 25° C:  0.005 μa

* Averaged over any interval of 30 seconds maximum.
# For conditions where the light source is a tungsten-filament lamp operated a color temperature of 2870° K. The supply voltage is 180 volts, the load resistor is 1 megohm, and the light input is 0.015 lumen.

→ indicates a change.
OPERATING CONSIDERATIONS

Exposure to intense illumination, such as direct sunlight, may decrease the sensitivity of the 1P42 even though no voltage is applied to the tube. The magnitude and duration of the decrease depend on the length of the exposure.

Shielding of the 1P42 and its leads to the amplifier is recommended when amplifier gain is high or when the phototube load resistance is high. Whenever frequency response is important in a phototube circuit, the leads from the phototube to the amplifier should be made short so as to minimize capacitance shunting of the phototube load. It is important that insulation of associated circuit parts and wiring be adequate.

SPECTRAL-SENSITIVITY CHARACTERISTIC of Phototube having S-9 Response is shown at front of this Section

NOTE: WHEN TUBE IS ROTATED ABOUT THE LONGITUDINAL AXIS OF ITS CATHODE TERMINAL, NO PART OF THE ANODE TERMINAL WILL FALL OUTSIDE OF A 0.241"-DIAMETER CIRCLE CONCENTRIC WITH THE LONGITUDINAL AXIS OF THE CATHODE TERMINAL.

92CS-679IR2

→ indicates a change.
AVERAGE ANODE CHARACTERISTICS

ANODE MICROAMPERES

0.7  0.6  0.5  0.4  0.3  0.2  0.1  0

ANODE VOLTS

200  150  100  50  0

0.005  0.015  0.025

LIGHT-FLUX: LUMINES-COLD

92CM-10757